WHAT IS CLAIMED IS:

1. An optical communication system comprising:

a plurality of optical transmitter outputting different wavelength lights respectively;

a multiplexer multiplexing the lights from the transmitters; and

an optical gate converting a multiplexed light from the multiplexer into a time division multiplexed signal light which has a different wavelength from the wavelengths of the output lights from the transmitters.

2. An optical communication system according to claim 1, wherein the otpical gate comprises a nonlinear loop mirror.

3. An optical communication system according to claim 1, wherein the optical gate comprises a nonlinear device.